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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/935,699 | 08/24/2001 | Toshiya Uemura | P 282892 T36-135964M/KOH | 9658 |
| 21254 | 7590 | 10/08/2004 | EXAMINER | |
| MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817 | | | KORNAKOV, MICHAEL | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1746 | |

DATE MAILED: 10/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/935,699

Applicant(s)

UEMURA ET AL.

Examiner

Michael Kornakov

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 11-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-7, 11-20 and 25-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 1-7, 11-20, and new claims 25-30 STAND withdrawn from consideration as **BEING NON-ELECTED BY ORIGINAL PRESENTATION**.

As amended on 10/30/2003 and further amended on 07/19/2004 currently presented claims 1-7, 11-20 and 25-30 ARE DIRECTED to an invention different from initially presented INVENTION BY INITIAL CLAIMS 1-10 filed 08/24/2001. This initially presented claims 1-10 were acted upon by the Examiner on 07/30/2003, and Applicants received first Office Action on the merits mailed 07/30/2003.

Therefore, claims 1-10 were constructively elected by the Applicants by original presentation.

If three sets of claims i.e.

- a) initially presented claims 1-10
- b) twice amended claims 1-7, 11-20 (10/30/2003 and 07/19/2004)
- c) claims 25-27 and 28-30 presented 07/19/2004

had been presented before the first Office Action on the merits, these claims would have been subjected to a restriction requirement on the basis of combination/subcombination relationship, wherein the combination as instantly presented does not require the particularities of subcombination for patentability, simply because the subcombination is neither novel, nor non-obvious (as shown in the first Office action on the merits wherein the prior art used in 102 rejection) and the

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subcombination, as was initially presented, has the utility by itself as a separate and independent cleaning process.

It is further noted that, in addition to their different relationship, the three groups of claims as noted above (a), (b) and (c) should be restricted as discussed above because they are now classified in totally different classes and subclasses. Such as initially presented claims 1-10 were classified class 134 subclass 1.

Claims 1-7 and 11-20, presented AFTER THE FIRST OFFICE ACTION ON THE MERITS are classified in class 438 subclass 142+, 689+, and class 216, subclass 13.

Claims 25-27 are classified in class 438, subclass 584.

Claims 28-30 are classified in class 438, subclass 460.

Because the initially acted upon claims 1-10 are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper and because these inventions are distinct for the reasons given above and the search required for initial claims 1-10 is not required new claims 1-7, 11-20, 25-27 and 28-30 restriction for examination purposes is proper.

Therefore, as required by MPEP § 803.02, § 806.04(a) - § 806.04(i), § 808.01(a), and § 808.02 for a restriction, a serious burden exists on the examiner if all claims are searched and examined. A serious burden on the examiner is shown by separate classification, separate status in the art, and a different field of search as defined in MPEP § 808.02.

Applicants' arguments reside in contention that the Examiner has never issued a restriction requirement with respect to these claims and therefore, Applicants have not been given the opportunity to traverse any restriction requirement and that it would be improper for these claims to be withdrawn from consideration without giving Applicant an opportunity to traverse the restriction resulting in the claims being withdrawn.

This is not found persuasive because the CLAIMS THAT ARE WITHDRAWN WERE NOT INITIALLY PRESENTED, but replaced the claims that already received the action on the merits. As fully explained above the invention identified by initial claims 1-10 has received the office action on the merits, and therefore this invention was constructively elected by Applicants. Examiner agrees that Applicants have the right to amend the claims by including embodiments from the specification, however, such amendment **cannot result in the claims drawn to another patentably distinct invention**. For support of Examiner's position, Applicants are cordially invited to the following sections of MPEP: 821.03 "**Claims for Different Invention Added After an Office Action**", 821.04 and 37 C.F.R. 1.142 (b).

2. Claims 21-24 are examined on the merits.
3. Compare to initially presented claims 21-24 contain the new limitations that:
 - a) the irradiated wafer comprises Group III nitride compound, and
 - b) the cleaned residue is being a resist residue.

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4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 21, 22, 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al (U.S. 4,987,008).

Yamazaki teaches formation of semiconductor device, which comprises photo-cleaning surfaces of III-V group compounds, such as GaN, by irradiating the said surfaces with light in wavelength from 100 to 400 nm (UV light) , produced by excimer, (col.4, lines 4-7, 59-62; col.10, lines 54-60; col.14, lines 30-35,50-51). With regard to the limitation that the process results in the cleaning of resist from the surface of the wafer, the rejection is made in the sense of *Leinoff v. Louis Milona & Sons, Inc.* 220 USPQ 845 (CAFC 1984), which holds axiomatic that one who performs the steps of a process must necessarily produce all of its advantages. Mere recitation of a newly discovered **function** that is inherently possessed by the steps in the prior art does not cause a claim drawn to those things to distinguish over the prior art. Therefore, since all the parameters of the process of Yamazaki are identical to those as claimed in the instant claim 21, the process is fully capable of removing resist as instantly claimed.

Therefore, all the limitations of instant claim are either expressly or inherently met by Yamazaki.

6. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al (U.S. 4,987,008) in view of Handbook of Semiconductor wafer cleaning Technology (Handbook), edited by W. Kern.

While explicitly disclosing the cleaning of n-type group III nitride semiconductor (col. 7, lines 10-31), the teaching of Yamazaki remains silent about the cleaning step, which is carried out on p-type semiconductor layer. Handbook teaches that UV cleaning has been shown to be a highly effective method of removing a variety of contaminants from **many types** of semiconductor surfaces (pages 262-263). Therefore, one skilled in the art, motivated by the teaching of Handbook, would have found it obvious to utilize the cleaning technique of Yamazaki in order to remove impurities from p-type semiconductor layers with the reasonable expectation of success.

Response to Arguments

7. Applicant's arguments filed 07/19/2004 have been fully considered but they are not persuasive. The crux of Applicants arguments is that "...Yamazaki does not teach or suggest and that Kern does not teach or suggest irradiating the surface wafer containing group III nitride compound semiconductor with ultraviolet rays to thereby clean a resist residue from said wafer"

This is not found persuasive and is fully explained in paragraph 5 above in light of the Court decision on *Leinoff v. Louis Milona & Sons, Inc.* The base presumption is that being identical by steps, parameters and nature of the surface to be cleaned the claimed process is fully capable of removing resist as instantly claimed.

See also *In re Tomlinson*, 363 F.2d 928, 150 USPQ 623 (CCPA 1966) wherein the Court held "While the references do not show a specific recognition of that result, its discovery by appellants is tantamount only to finding a property in the old

composition in a known process." 363 F.2d at 934, 150 USPQ at 628.

Applicants arguments with regard to claims other than 21-24 are moot since these claims are withdrawn from consideration. With regard to Kern "Handbook" this reference was not taken to remedy the deficiency of "cleaning resist residue", because this is inherently met by Yamazaki. The Kern reference only shows that the p-type semiconductor layer can also be cleaned in a process of Yamazaki.

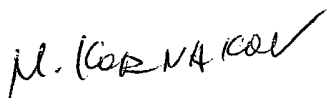
8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (571) 272-1303. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael Kornakov
Primary Examiner
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10/06/2004